IN THE CLAIMS

1. (original) A method for determining whether a projection is truncated, said method comprising:

calculating a sum of all samples at each projection view of a scan of an object;

determining a maximum value of the calculated sums;

averaging a plurality of samples m at a projection view index k when the sum of all samples at index k is less than a predetermined percentage of the maximum value;

comparing the average to a threshold t;

determining the projection truncated when the average is greater than t; and

determining the projection not truncated when the average is not greater than t.

2. (original) A method in accordance with Claim 1 further comprising augmenting partially sampled field of view data using fully sampled field of view data when the projection is determined truncated.

3. (original) A method in accordance with Claim 1 wherein said comparing the average to a threshold t comprises comparing the average to a threshold t, wherein t is between about .25 and about .58.

4. (original) A method in accordance with Claim 3 wherein said comparing the average to a threshold t comprises comparing the average to a threshold t, wherein t is between about .33 and about .5.

5. (original) A method in accordance with Claim 4 wherein said comparing the average to a threshold t comprises comparing the average to a threshold t, wherein t is between about .375 and about .46.

6. (original) A method in accordance with Claim 5 wherein said comparing the average to a threshold t comprises comparing the average to a threshold t, wherein t is about .42.

7. (original) A method in accordance with Claim 1 further comprising estimating a total attenuation τ(k) using a plurality of projection views.

8. (original) A method in accordance with Claim 7 wherein said estimating a total attenuation τ(k) using a plurality of projection views comprises estimating a total attenuation τ(k) in accordance with:

$$\tau(k) = \frac{k_2 - k}{k_2 - k_1}\xi(k_1) + \frac{k - k_1}{k_2 - k_1}\xi(k_2)$$

where k_1 and k_2 are view locations of un-truncated views adjacent to a truncation region comprising at least one projection determined truncated, and ξ(k) is calculated as $\xi(k) = \sum_{i=1}^{N} p(i,k)$.

9. (original) A method in accordance with Claim 8 further comprising determining an attenuation difference λ(k) in accordance with $\lambda(k) = \tau(k) - \xi(k)$.

10. (original) A method in accordance with Claim 9 further comprising:

calculating an amount of attenuation to add η(k) in accordance with $\eta(k) = \frac{\pi}{2} R_l^2(k) - x_l(k) p_l(k) - R_l^2(k) \arcsin\left(\frac{x_l(k)}{R_l(k)}\right) + \frac{\pi}{2} R_r^2(k) - x_r(k) p_r(k) - R_r^2 \arcsin\left(\frac{x_r(k)}{R_r(k)}\right)$ wh

ere $p_l(k)$, and $p_r(k)$, are the magnitude of a left and a right projection boundary samples averaged over multiple views, respectively, and $x_l(k)$, $x_r(k)$, $R_l(k)$, and $R_r(k)$ are a location and radius of a left and right fitted cylinders, respectfully; and

comparing $\eta(k)$ to $\lambda(k)$.

11. (original) A method in accordance with Claim 10 wherein said comparing $\eta(k)$ to $\lambda(k)$ comprises calculating a ratio $\varepsilon(k) = \frac{\eta(k)\mu_w}{\lambda(k)}$ where μ_w is an attenuation coefficient of water, said method further comprising:

comparing $\varepsilon(k)$ to a threshold q; and

using at least one of $\eta(k)$ and $\lambda(k)$ to correct an image when $\varepsilon(k)$ is not greater than q; and

not using either of $\eta(k)$ and $\lambda(k)$ to correct an image when $\varepsilon(k)$ is greater than q.

12. (original) A method in accordance with Claim 11 wherein said comparing $\varepsilon(k)$ to a threshold q comprises comparing $\varepsilon(k)$ to a threshold q, wherein q is between about 1.5 and about 2.5.

13. (original) A method in accordance with Claim 11 wherein said comparing $\varepsilon(k)$ to a threshold q comprises comparing $\varepsilon(k)$ to a threshold q, wherein q is between about 1.75 and about 2.25.

14. (original) A method in accordance with Claim 11 wherein said comparing $\varepsilon(k)$ to a threshold q comprises comparing $\varepsilon(k)$ to a threshold q, wherein q is between about 1.9 and about 2.1.

15. (original) A method in accordance with Claim 11 wherein said comparing ε(k) to a threshold q comprises comparing ε(k) to a threshold q, wherein q is about 2.

16. (original) A method in accordance with Claim 11 wherein said using at least one of η(k) and λ(k) to correct an image when ε(k) is not greater than q comprises using η(k) to correct an image when ε(k) is not greater than q.

17. (original) A method in accordance with Claim 11 wherein said not using either of η(k) and λ(k) to correct an image when ε(k) is greater than q comprises:

calculating a $\eta_n(k)$ based on data regarding a k_1-n view and a k_2+n view, wherein n is an integer;

and correcting an image using the $\eta_n(k)$.

18. (original) A method in accordance with Claim 17, wherein n is between 2 and 8 inclusive.

19. (original) A method in accordance with Claim 17, wherein n is between 3 and 7 inclusive.

20. (original) A method in accordance with Claim 17, wherein n is 5.

21. (original) A method in accordance with Claim 7 wherein said estimating a total attenuation τ(k) using a plurality of projection views comprises estimating a total attenuation τ(k) in accordance with:

$$\tau(k) = \frac{k_2 - k}{k_2 - k_1}\xi(k_1) + \frac{k - k_1}{k_2 - k_1}\xi(k_2)$$

where k_1 and k_2 are averages of a plurality of view locations of un-truncated views adjacent to a truncation region comprising at least one projection determined truncated, and $\xi(k)$ is calculated as $\xi(k)=\sum_{i=1}^{N} p(i,k)$.

22. (currently amended) An imaging apparatus comprising:

a radiation source;

a detector responsive to radiation positioned to receive radiation emitted from said source; and

a computer operationally coupled to said radiation source and said detector, said computer configured to:

~~calculating~~ calculate a sum of all samples at each projection view of a scan of an object;

~~determining~~ determine a maximum value of the calculated sums;

~~averaging~~ average a plurality of samples m at a projection view index k when the sum of all samples at index k is less than a predetermined percentage of the maximum value;

compare the average to a threshold t;

determine the projection truncated when the average is greater than t; and

determine the projection not truncated when the average is not greater than t.

23. (original) An apparatus in accordance with Claim 22 wherein said computer is further configured to compare the average to a threshold t, wherein t is between about .25 and about .58.

24. (original) An apparatus in accordance with Claim 22 wherein said computer is further configured to estimate a total attenuation $\tau(k)$ in accordance with:

$$\tau(k) = \frac{k_2 - k}{k_2 - k_1}\xi(k_1) + \frac{k - k_1}{k_2 - k_1}\xi(k_2)$$

where k_1 and k_2 are view locations of un-truncated views adjacent to a truncation region comprising at least one projection determined truncated, and $\xi(k)$ is calculated as $\xi(k) = \sum_{i=1}^{N} p(i,k)$.

25. (original) An apparatus in accordance with Claim 22 wherein said computer is further configured to estimate a total attenuation $\tau(k)$ in accordance with:

$$\tau(k) = \frac{k_2 - k}{k_2 - k_1}\xi(k_1) + \frac{k - k_1}{k_2 - k_1}\xi(k_2)$$

where k_1 and k_2 are averages of a plurality of view locations of un-truncated views adjacent to a truncation region comprising at least one projection determined truncated, and $\xi(k)$ is calculated as $\xi(k) = \sum_{i=1}^{N} p(i,k)$.

26. (original) An apparatus in accordance with Claim 25 wherein said computer is further configured to:

determine a attenuation difference $\lambda(k)$ in accordance with $\lambda(k) = \tau(k) - \xi(k)$;

calculate an amount of attenuation to add $\eta(k)$ in accordance with $\eta(k) = \frac{\pi}{2} R_l^2(k) - x_l(k) p_l(k) - R_l^2(k) \arcsin\left(\frac{x_l(k)}{R_l(k)}\right) + \frac{\pi}{2} R_r^2(k) - x_r(k) p_r(k) - R_r^2 \arcsin\left(\frac{x_r(k)}{R_r(k)}\right)$ where $p_l(k)$, and $p_r(k)$, are the magnitude of a left and a right projection boundary samples averaged over multiple views, respectively, and $x_l(k)$, $x_r(k)$, $R_l(k)$, and $R_r(k)$ are a location and radius of a left and right fitted cylinders, respectfully;

compare $\eta(k)$ to $\lambda(k)$ by calculating a ratio $\varepsilon(k) = \frac{\eta(k)\mu_w}{\lambda(k)}$ where μ_w is an attenuation coefficient of water;

compare $\varepsilon(k)$ to a threshold q;

use at least one of $\eta(k)$ and $\lambda(k)$ to correct an image when $\varepsilon(k)$ is not greater than q; and

when $\varepsilon(k)$ is greater than q:

calculate a $\eta_n(k)$ based on data regarding a k_1-n view and a k_2+n view, wherein n is an integer; and

correct an image using the $\eta_n(k)$.

27. (original) A computer readable medium encoded with a program configured to instruct a computer to:

calculate a sum of all samples at each projection view of a scan of an object;

determine a maximum value of the calculated sums;

average a plurality of samples m at a projection view index k when the sum of all samples at index k is less than a predetermined percentage of the maximum value;

compare the average to a threshold t;

determine the projection truncated when the average is greater than t;

determine the projection not truncated when the average is not greater than t;

estimate a total attenuation τ(k) in accordance with

$$\tau(k) = \frac{k_2 - k}{k_2 - k_1}\xi(k_1) + \frac{k - k_1}{k_2 - k_1}\xi(k_2)$$

where k_1 and k_2 are averages of a plurality of view locations of un-truncated views adjacent to a truncation region comprising at least one projection determined truncated, and ξ(k) is calculated as $\xi(k) = \sum_{i=1}^{N} p(i,k)$;

determine a attenuation difference λ(k) in accordance with $\lambda(k) = \tau(k) - \xi(k)$;

calculate an amount of attenuation to add η(k) in accordance with $\eta(k) = \frac{\pi}{2}R_l^2(k) - x_l(k)p_l(k) - R_l^2(k)\arcsin\left(\frac{x_l(k)}{R_l(k)}\right) + \frac{\pi}{2}R_r^2(k) - x_r(k)p_r(k) - R_r^2 \arcsin\left(\frac{x_r(k)}{R_r(k)}\right)$ where $p_l(k)$, and $p_r(k)$, are the magnitude of a left and a right projection boundary samples

averaged over multiple views, respectively, and $x_l(k)$, $x_r(k)$, $R_l(k)$, and $R_r(k)$ are a location and radius of a left and right fitted cylinders, respectfully;

compare $\eta(k)$ to $\lambda(k)$ by calculating a ratio $\varepsilon(k) = \frac{\eta(k)\mu_w}{\lambda(k)}$ where μ_w is an attenuation coefficient of water,

compare $\varepsilon(k)$ to a threshold q;

use at least one of $\eta(k)$ and $\lambda(k)$ to correct an image when $\varepsilon(k)$ is not greater than q; and

when $\varepsilon(k)$ is greater than q:

calculate a $\eta_n(k)$ based on data regarding a k_1-n view and a k_2+n view, wherein n is an integer; and

correct an image using the $\eta_n(k)$.